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FRIDAY, MAY 31, 1895.

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(1) 'ON THE ELECTRIFICATION OF AIR.*'

§ 1. CONTINUOUS observation of natural atmospheric electricity has given ample proof that cloudless air at moderate heights above the earth's surface, in all weathers,

* Two communications by Lord Kelvin, P.R.S., to the Philosophical Society of Glasgow, meeting in the Natural Philosophy lecture-room of the University of Glasgow, March 27, 'On the Electrification of

is electrified with very far from homogeneous distribution of electric density. Observing, at many times from May till September, 1859, with my portable electrometer on a flat open sea-beach of Brodick Bay in the Island of Arran, in ordinary fair weather at all hours of the day, I found the difference of potentials, between the earth and an insulated burning match at a height of 9 feet above it (2 feet from the uninsulated metal case of the instrument, held over the head of the observer), to vary from 200 to 400 Daniell's elements, or as we may now say volts, and often during light breezes from the east and northeast it went up to 3,000 or 4,000 volts. In that place, and in fair weather, I never found the potential other than positive (never negative, never even down to zero), if for brevity we call the earth's potential at the place zero. In perfectly clear weather under a sky sometimes cloudless, more generally somewhat clouded, I often observed the potential at the 9 feet height to vary from about 300 volts gradually to three or four times that amount, and gradually back again to nearly the same lower value in the course of about two minutes.* I inferred that these gradual variations must have been produced by

Air'; 'On the Thermal Conductivity of Rock at Different Temperatures.' Printed from proof sheets for *Nature* contributed by the author.

* 'Electrostatics and Magnetism,' Sir William Thomson. xvi. §§ 281, 282.